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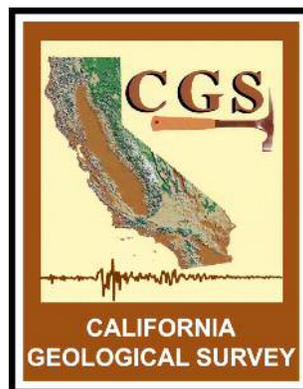
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COLLECTION INVENTORY AND DATA PRESERVATION FOR THE CALIFORNIA GEOLOGICAL SURVEY

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By

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ABSTRACT

Funds provided through the U.S. Geological Survey – National Geological and Geophysical Data Preservation Program (NGGDPP) Award No. G10AP00106, enabled the California Geological Survey (CGS) to support two projects focused on separate NGGDPP FY 2010 priorities. In the first project, a **Collection Inventory**, the CGS conducted an inventory of current collections, evaluated their data preservation needs, and entered this information into the NGGDPP State Collections Inventory. The second project, a **Digital Infrastructure** priority, focused on scanning the paper geologic maps that were inventoried and had their metadata entered into the National Digital Catalog of Geological and Geophysical Data under last year's NGGDPP funding (Award No. G09AP00100).

The CGS operates through seven different programs each with a specific focus, objective, and derivative products. As a result, each program maintains separate collections of materials and data that support their efforts. In Project 1, a **Collection Inventory**, the CGS Librarian, solicited input from program managers, regarding their associated collections and data preservation concerns. The resulting survey was evaluated, synthesized, and entered into the NGGDPP State Collections Inventory. Prior to this, CGS had not applied for or received funds for a survey-wide collection inventory. The second project involved a collection of geologic maps contained in the CGS's Regional Geologic Mapping Project files. This collection contains geologic maps, at various scales, used to compile 1:250,000-scale Atlas and Regional Geologic Map Series that cover the state. These maps are one-of-a-kind, in poor condition, and in some cases relatively unknown. The previous year's NGGDPP award allowed for an inventory and creation of metadata for selected geologic maps in these files. This year's Project 2, **Digital Infrastructure**, was a follow-up effort that focused on scanning the 958 paper geologic maps that were entered into the National Digital Catalog of Geological and Geophysical Data last year. Scanned images will be available by request while future web access is being evaluated. Collections held by CGS are frequently used by staff geologists, state, and federal agencies (including U.S. Geological Survey), consulting firms, and the general public.

TABLE OF CONTENTS

ABSTRACT	1
TABLE OF CONTENTS.....	2
LIST OF FIGURES.....	3
INTRODUCTION.....	4
Project 1: Collection Inventory	4
Introduction.....	4
Project Description.....	5
Outcome	6
Project 2: Digital Infrastructure.....	6
Introduction.....	6
Project Description.....	7
Outcome	10

LIST OF FIGURES

Figure 1. Organization chart showing the seven programs that operate within the California Geological Survey.	4
Figure2. California Geological Survey Programs and summary of collections.	5
Figure 3. Image of the Geologic Map of the San Jose Sheet - an example of one of the twenty-seven sheets that comprise the 1:250,000-scale Geologic Atlas Series.	7
Figure 4. Image of the Index to Geologic Mapping used in the compilation of the San Jose Sheet - an example of the detailed geologic maps used for one map sheet. Yellow areas indicate unpublished, one-of-a-kind mapping considered for scanning.	8
Figure 5. Examples of portions of unpublished geologic mapping contained in the Regional Geologic Mapping Program files scanned as part of Project 2.	9

COLLECTION INVENTORY AND DATA PRESERVATION FOR THE CALIFORNIA GEOLOGICAL SURVEY

Introduction:

This report covers two projects that were funded in part through the U.S. Geological Survey – National Geological and Geophysical Data Preservation Program (NGGDPP) Award No. G10AP00106 and represents the second year of participation in this program, by the California Geological Survey (CGS). Project 1, a **Collection Inventory**, represents an effort to solicit input from CGS program managers, regarding their associated collections and data preservation concerns and add this information to the NGGDPP State Collections Inventory. Prior to this, CGS had not applied for or received funds for a survey-wide collection inventory. Project 2, **Digital Infrastructure**, focused on converting paper geologic maps, entered into the National Digital Catalog of Geological and Geophysical Data last year, into digital format. A more detailed discussion of these two projects follows.

Project 1: Collection Inventory

Introduction:

The mission of CGS is to provide scientific products and services about the state's geology, seismology and mineral resources and related hazards that affect the health, safety, and business interests of the people of California. This mission is served through seven programs (Figure 1) each with a specific focus, objective, and derivative products. As a result, each program maintains separate collections of materials and data, in a variety of formats, to support their efforts. As part of its heritage, the CGS also holds historical collections of maps, mine reports, and photographs that are partially organized and poorly cataloged. Requests for information contained in these collections are received on a regular basis from consultants, governmental agencies, academic researchers, and the general public for a variety of uses. Budget reductions

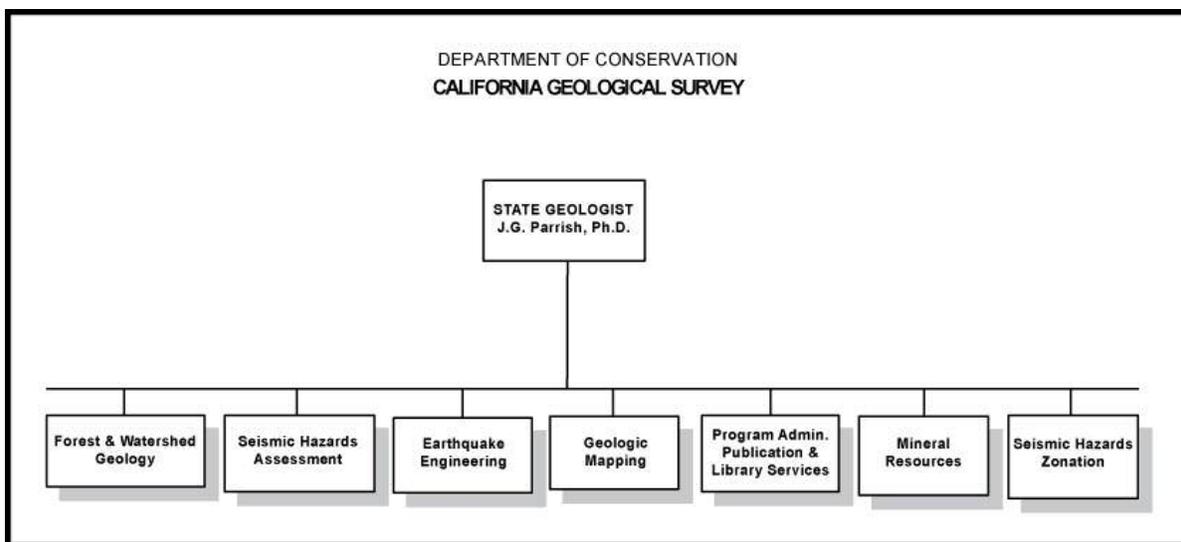


Figure 1. Organization chart showing the seven programs that operate within the California Geological Survey.

and employee furloughs have shortened hours of operation and limited access to these collections. An inventory of collections is the first step toward organizing these data and making it easier to locate and respond to client inquiries as well as developing a preservation plan. Once the collections have been identified the CGS can begin the task of prioritizing its efforts for cataloging and future data entry into the National Digital Catalog of Geological and Geophysical Data.

Project Description:

The project began July 1st 2010 and was to be completed on June 30th 2011. However, due to delays affecting the completion of Project 2, a three month, no-cost extension was requested and granted.

The primary goal of this project was to conduct an inventory of current collections within the CGS, evaluate their data preservation needs, and enter this information into the NGGDPP State Collections Inventory. This goal was to be accomplished by contacting the CGS program managers and soliciting their input. CGS Librarian, David Lushbaugh, took the lead on this project by initiating a survey of the various programs. During this time it was learned that several programs had already started or were in the process of cataloging their pertinent data collections and developing plans for converting these data into digital format. These collections are held within the Earthquake Engineering, Seismic Hazards Assessment, and Seismic Hazards Zonation programs of the CGS. Due to varying formats in database structure and ongoing development of distribution methods and formats, these collections were not entered into the NGGDPP State Collections Inventory (Figure 2 - yellow highlights). Information on collections held by the Publication and Library Services Program and the Geologic Mapping Program of the CGS were received and added to the NGGDPP State Collections Inventory (Figure 2 - green highlights).

CALIFORNIA GEOLOGICAL SURVEY PROGRAMS AND COLLECTIONS						
<i>Forest & Watershed Geology</i>	<i>Seismic Hazards Assessment</i>	<i>Earthquake Engineering</i>	<i>Geologic Mapping</i>	<i>Program Admin. Library & Publications</i>	<i>Mineral Resources</i>	<i>Seismic Hazards Zonation</i>
Collections	Collections	Collections	Collections	Collections	Collections	Collections
Timber Harvest Reviews	Hospital Reports	Strong Motion Data/Analog	Geologic Map Files	Historic Maps	Field Maps	Borehole Database
Digital Map Data	School Reports	Strong Motion Data/Digital	Southern Pacific Maps	Historic Mine Reports	Mine Records	Analog Borehole Logs
			Aerial Photographs	Historic Photographs	Production Records	Digital Map Data
			DBAP Geologic Maps		Geochemical Data	
			Field Maps		Digital Map Data	
			Digital Map Data			

Figure 2. California Geological Survey Programs and summary of collections. Colored highlights indicate status of NGGDPP State Collections Inventory. Green - entered as part of this project; Orange - previously entered; Yellow - not entered (see discussion under Project Description); No highlight - not entered due to lack of data.

Outcome:

The CGS is currently developing a long-range data preservation plan for all of its programs with 2015 being set as a target for completion of all archiving. One of the first steps toward reaching this goal was to inventory collections held by the CGS. NGGDPP funding provided the opportunity to conduct this inventory which will be a primary factor in establishing priorities and developing the details of this plan. As a direct result of this project, 9 collections were added to the NGGDPP State Collections Inventory (Figure 2 – green highlights). These collections are held by the Publication and Library Services Program and the Geologic Mapping Program of the CGS. The CGS can now begin the task of prioritizing its efforts for cataloging these collections and future data entry into the National Digital Catalog of Geological and Geophysical Data.

The following is a summary of collections added to the NGGDPP State Collections Inventory as a direct result of this project (Figure 2 - green highlights):

- Historic Mine Reports
 - Franz Fredrick Collection
 - Wilbur Grant Collection
 - Oscar Hershey Collection
 - Phil Bradley Collection
 - Schwarzmans Collection
- Historic Photographs
 - Olaf Jenkins lantern slide collection
- Aerial photography held by the CGS's Menlo Park office
- Geologic maps and reports prepared by Southern Pacific Railroad
- Geologic maps prepared as part of the CGS's Database Augmentation Program (DBAP)

Project 2: Digital Infrastructure**Introduction:**

Project 2 requested funds for scanning selected geologic maps contained in the CGS's Regional Geologic Mapping Project (RGMP) files. These files contain the larger-scale source data materials that were used in the preparation of our 1:250,000-scale Geologic Atlas and Regional Geologic Map series compilations (Figure 3). These series of maps offer statewide geologic coverage in regional 1° x 2° blocks and provide a bibliographic resource for users looking for more detailed geologic mapping (Figure 4). The RGMP files contain both published and unpublished geologic mapping conducted by CGS geologists, funded by the CGS, or submitted by other geologists for use in these compilations. A number of these maps are one-of-a-kind, in poor condition, and in some cases relatively unknown. Scanning will not only create a permanent record but will provide images that can be easily accessed and distributed electronically to our stakeholders. This scanning effort is a follow-up to the inventory and metadata creation project, for selected geologic maps contained in these files, that was completed last year with NGGDPP funds (Award No. G09AP00100).

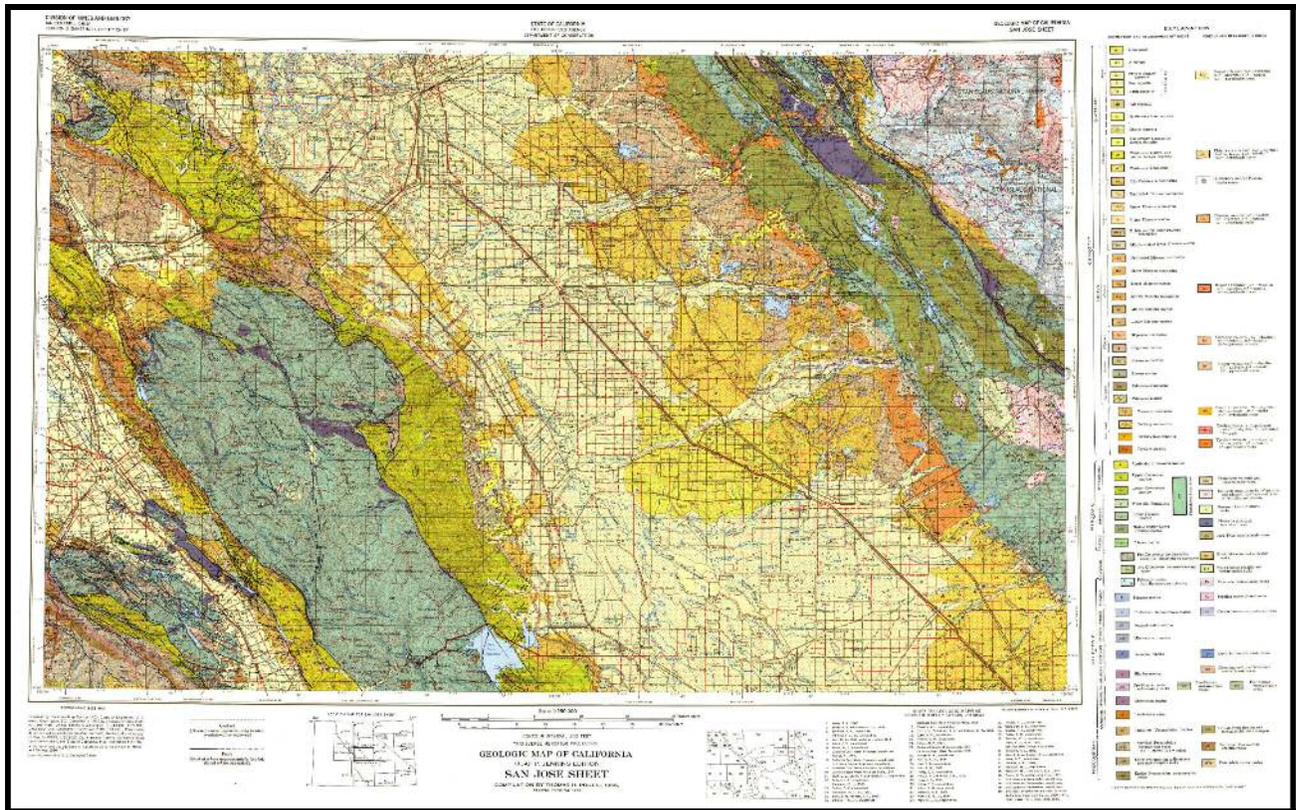


Figure 3. Image of the Geologic Map of the San Jose Sheet - an example of one of the twenty-seven sheets that comprise the 1:250,000-scale Geologic Atlas Series.

Project Description:

The project began July 1st 2010 and was to be completed on June 30th 2011. However, delays were encountered related to the acquisition, set up, and calibration of a flat bed scanner and the hiring of student help due to budgetary restrictions imposed on state agencies. In addition, the number and file size of scanned images generated during this project created a shortage of server disk space requiring the frequent manipulation of files. For these reasons, a three month, no-cost extension was requested and granted.

The primary goal of this project was to create a digital archive of the RGMP geologic maps that were inventoried under last year’s NGGDPP award. Digital images of these maps will provide a more convenient means of access for the CGS staff and offer electronic distribution to our stakeholders. This goal was to be accomplished by using the newly created inventory and metadata as a guide to locating selected maps within the RGMP files. A Student Assistant, along with the Principal Investigator, George Saucedo, worked together to develop processes and procedures for the scanning of the maps.

A Colortrac SmartLF Cx 40 scanner was obtained from the CGS’s publications unit in Sacramento and set up in the Menlo Park, California office where the RGMP files reside. Initial scans revealed some problems with image quality and resolution.

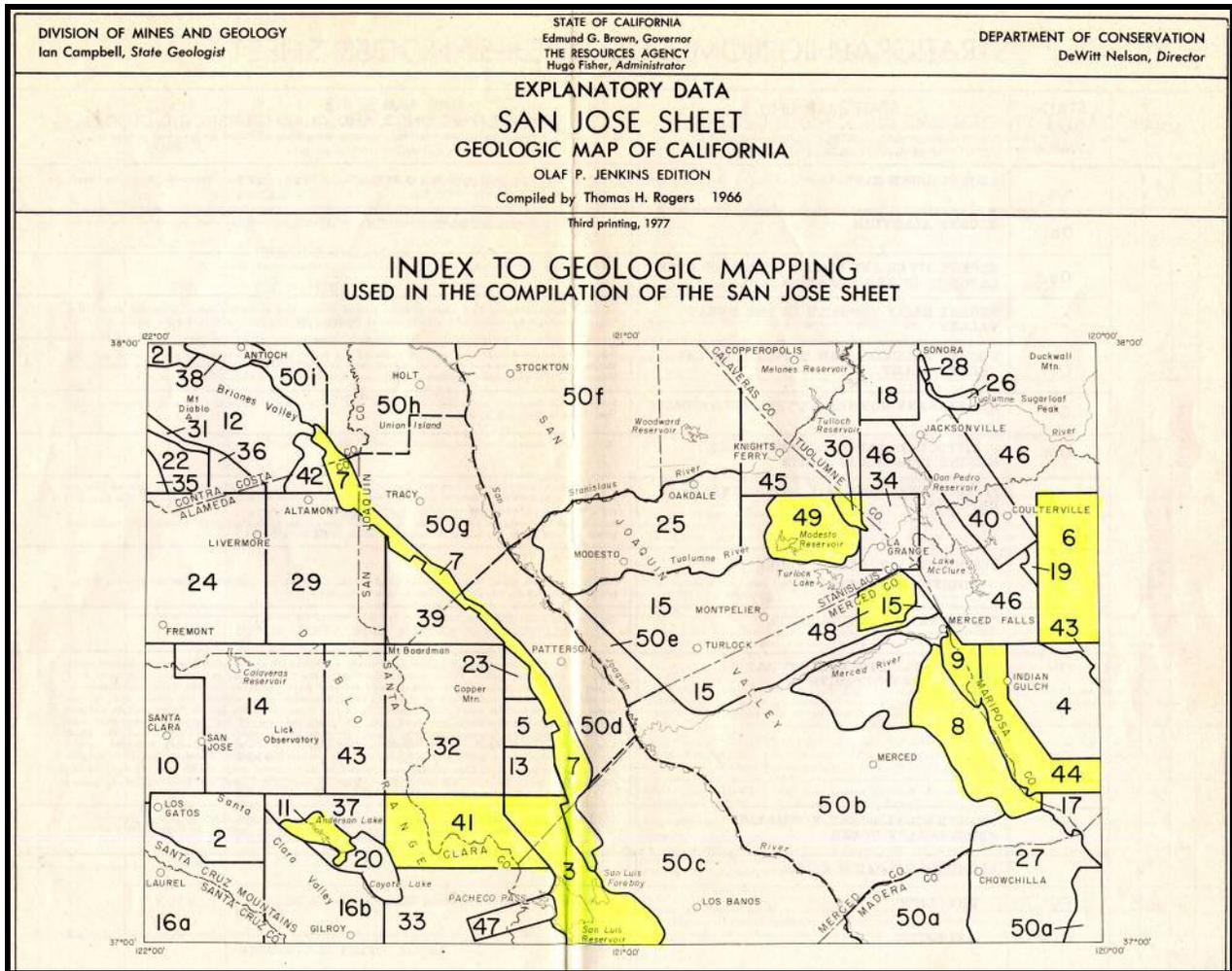
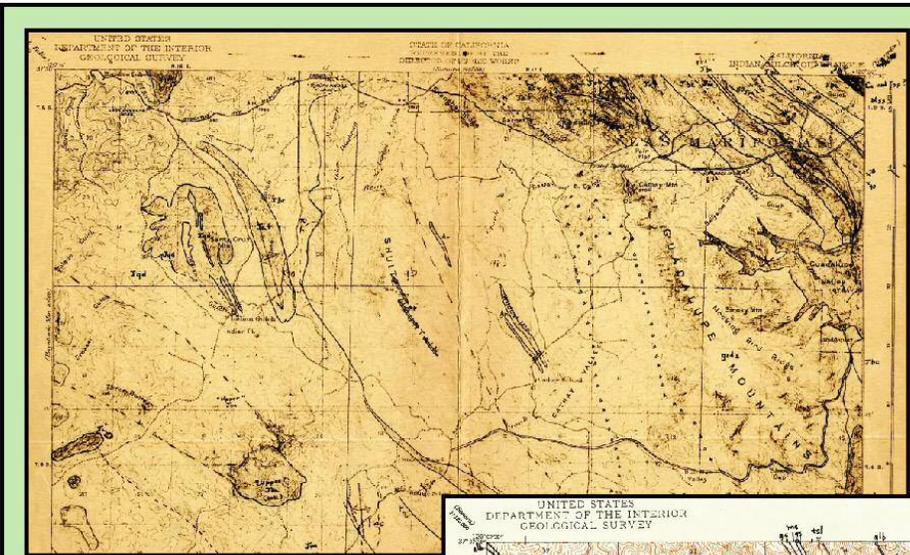


Figure 4. Image of the Index to Geologic Mapping used in the compilation of the San Jose Sheet - an example of the detailed geologic maps used for one map sheet. Yellow areas indicate unpublished, one-of-a-kind mapping considered for scanning.

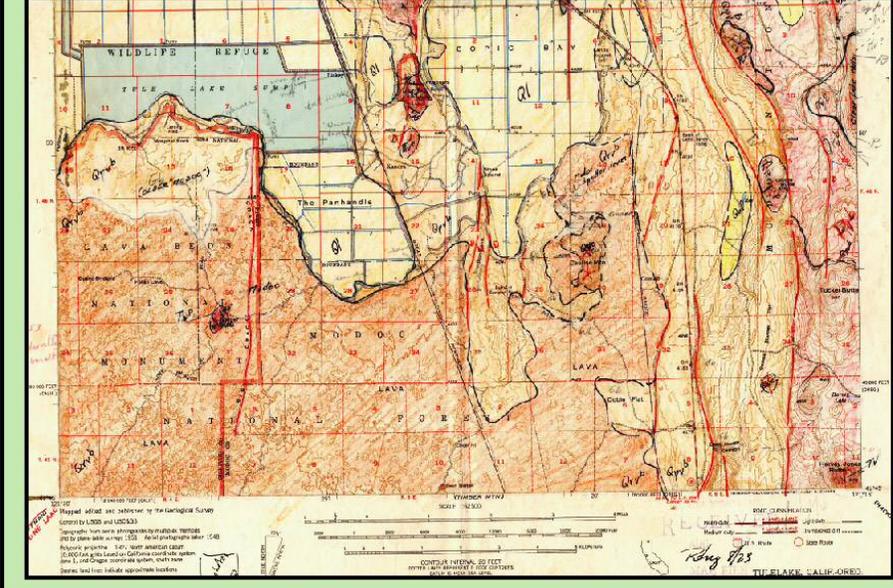
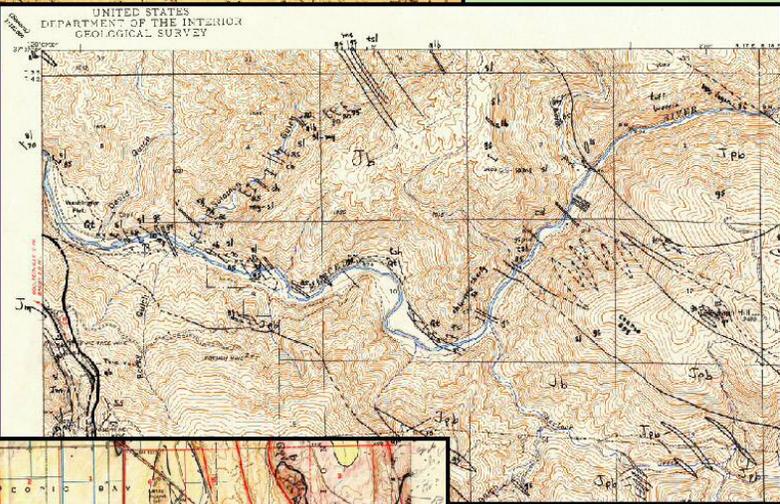
Student Assistant, Beth Haddon, working with Department of Conservation technical support staff and Colortrac technicians, was able to resolve these issues and calibrate the scanner for use. It was determined, that even though file sizes were larger, the best images were obtained when scanning in full color mode. To reduce file size, scanning was done at 300 dpi resolution rather than the 400 dpi as originally proposed and saved in TIFF format.

The RGMP geologic map files are arranged alphabetically by the names of the twenty-seven 1:250,000-scale (1°x 2°) topographic quadrangle sheets covering California. The files consist of thirty-six drawers contained in eight, five-drawer file cabinets with each file drawer averaging approximately one hundred folders. Using the newly created



Geologic map of the Indian Gulch 15-minute quadrangle by N.L. Taliaferro, 1930

Geologic map of the Bear Valley 7.5-minute quadrangle by O.E. Bowen, 1965



Geologic map of the Tulelake 15-minute quadrangle by T.E. Gay and Q. A. Aune, 1958

Figure 5. Examples of portions of unpublished geologic mapping contained in the Regional Geologic Mapping Program files scanned as part of Project 2.

inventory and metadata as a guide, locating maps, selected for scanning within the RGMP files, proved relatively easy. Along with geologic maps, additional materials such as explanations and cross sections, were also scanned. As items were scanned, they were labeled with the unique identifying number as recorded in the metadata under the **ALTERNATETITLE** field and returned to their file folders. Images were saved into directories named for the appropriate 1:250,000-scale (1°x 2°) topographic quadrangle sheet.

Outcome:

Funding through the NGGDPP provided the opportunity to scan a collection of geologic maps contained in the files of the California Geological Survey's Regional Geologic Mapping Project. The images created as a direct result of this project will serve as an expedient way to locate pertinent geologic mapping and distribute to CGS staff and our stakeholders. The CGS will now be working to develop a format for locating and distributing these data through the internet. In the mean time, the digital images will be available to CGS staff for program use and available for limited external distribution until a formal web portal can be implemented. Print on demand products will be another option

The following is a summary of results of this project:

- Over 1,450 items have been scanned for archiving (160+ gigabytes)
- Updates and corrections have been made to the metadata
- Revised metadata file will be uploaded into the National Digital Catalog
- Since the metadata was created 46 file folders were found to be checked out or missing and not available for scanning
- Efforts will be made to retrieve missing files and scan appropriate materials

The California Geological Survey looks forward to future cooperation and participation in this program.